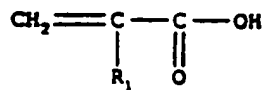


I Claim:

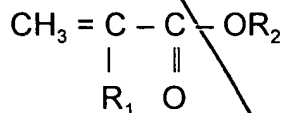
1. A composition comprising, in a cosmetically acceptable support suitable for dyeing the hair, at least one direct dye and at least one crosslinked polymer containing acrylic residue units of the structure



in which R₁ denotes H, CH₃ or C₂H₅, and C₁₀-C₃₀ alkyl acrylate residue units, wherein said composition is a direct dyeing composition for the hair, and wherein said at least one direct dye is chosen from an acidic anthraquinone dye, a cationic anthraquinone dye, an acidic azo dye, and a cationic azo dye.

2. A composition according to claim 1, wherein said at least one crosslinked polymer comprises:

- (a) residue units of one of an acrylic, methacrylic or ethacrylic acid,
- (b) residue units of an acrylate of formula:

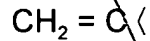


in which:

R₁ denotes H or CH₃ or C₂H₅, and

R₂ denotes an alkyl radical having from 10 to 30 carbon atoms, and,

(c) residue units of a crosslinking polymerizable monomer containing a group



and also containing at least one other polymerizable group, wherein the

5 unsaturated bonds in said CH₂ = C (group and said at least one other polymerizable group are not conjugated with each other.

3. A composition according to claim 2, wherein at least one of the following conditions is true:

- 10 (1) said at least one crosslinked polymer is a terpolymer, and wherein said terpolymer contains: (a) residue units of one of acrylic or methacrylic acid;
- (2) R₁ denotes H or CH₃;
- (3) R₂ denotes a C₁₂-C₂₂ alkyl radical; and
- (4) said crosslinking polymerizable monomer is a polyallyl ether.

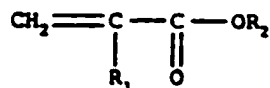
4. A composition according to claim 3, wherein said polyallyl ether is

15 selected from polyallylsucrose and polyallylpentaerythritol.

5. A composition according to claim 3, wherein said terpolymer contains:

(a) residue units of an acrylic acid

(b) residue units of an acrylate of formula:



in which:

R₁ denotes H or CH₃, and

R₂ denotes an alkyl radical having from 12 to 22 carbon atoms, and

(c) residue units of a polyallyl ether.

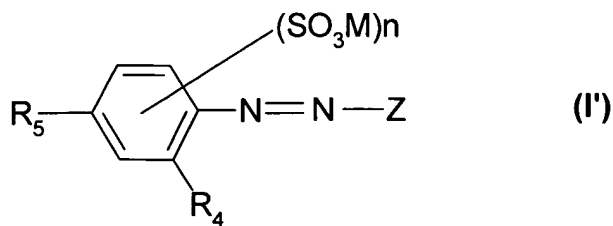
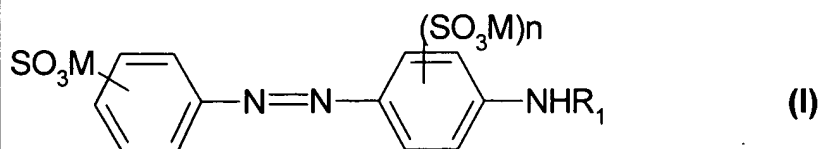
5 6. A composition according to claim 2, wherein said residue units (a) are present in an amount ranging from 60 to 95% by weight, said residue units (b) are present in an amount ranging from 4 to 40% by weight, and said residue units (c) are present in an amount ranging from 0.1 to 6% by weight, relative to the total weight of the crosslinked polymer.

10 7. A composition according to claim 6, wherein said residue units (a) are present in an amount ranging from 96 to 98% by weight, said residue units (b) are present in an amount ranging from 1 to 4% by weight, and said residue units (c) are present in an amount ranging from 0.1 to 0.6% by weight, relative to the total weight of the crosslinked polymer.

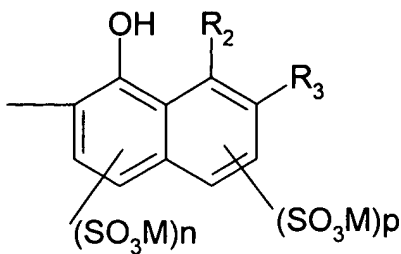
8. A composition according to claim 1, wherein said at least one crosslinked polymer is present in an amount ranging from 0.05 to 5% by weight relative to the total weight of said composition.

9. A composition according to claim 8, wherein said at least one crosslinked polymer is present in an amount ranging from 0.1 to 3% by weight relative to the total weight of said composition.

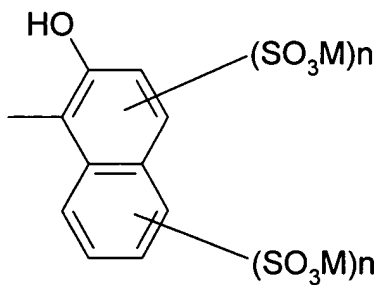
10. A composition according to claim 1, wherein said at least one direct dye is an acid azo dye of formulae (I) or (I'):



in which Z denotes (I')a or (I')b:



(I')a



(I')b

in which:

5

n denotes zero or 1,

p denotes zero, 1 or 2,

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M denotes H or an alkali or alkaline-earth counterion, an organic amine which may be hydroxylated or not hydroxylated, or ammonia,

R₁ denotes H, a C₁-C₄ alkyl radical or an cycloalkylaryl radical,

R₂ denotes H, an -NH₂ radical, an -HN-CO-CH₃ radical or an -NHSO₂-phenyl radical,

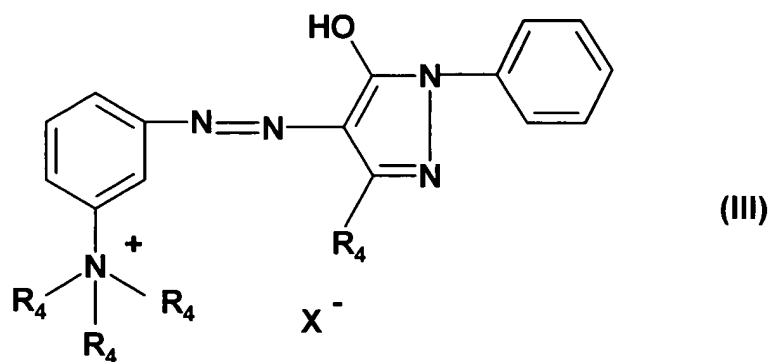
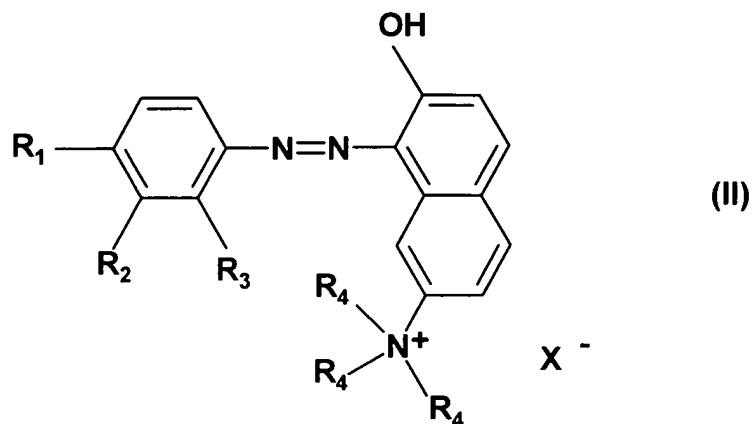
R₃ denotes H, or a -N=N-(para-nitrophenyl) radical,

R₄ denotes a H, a C₁-C₄ alkyl radical, a C₁-C₄ alkoxy radical, or forms a naphthalenyl ring with the adjacent carbon atom which is unsubstituted of the phenyl group,

R₅ denotes H, a C₁-C₄ alkyl radical, an -SO₃Na radical, a -NH₂ radical, an -HN-CO-CH₃ radical or an -NO₂ radical, and in which at least one -SO₃M group is present in formulae (I), (I')a and (I')b.

11. A composition according to claim 1, wherein said at least one direct dye is a cationic azo dye of formulae (II), (III), (IV), (V), (VI), (VI'), (VII) and their mesomeric forms, wherein

(i) dyes of formulae (II) and (III) are:



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in which:

R_1 denotes H or an $-NH_2$ radical,

R_2 denotes H or a $-NO_2$ radical,

R_3 denotes H or a $-NO_2$ radical or an C_1-C_4 alkoxy radical,

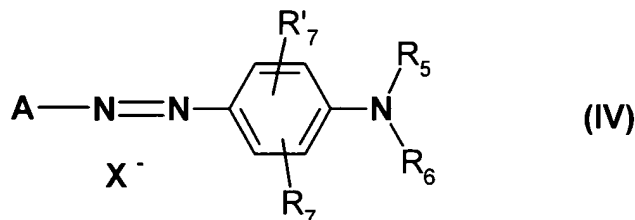
5 R_4 denotes a C_1-C_4 alkyl radical,

X^- denotes an anion chosen from chloride, methyl sulphate and acetate,

wherein;

(ii) dyes of formulae (IV), (V), (VI), (VI'), (VII) include:

a) the compounds of formula (IV):



in which:

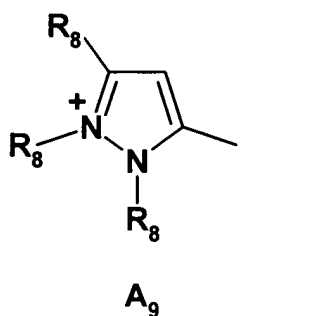
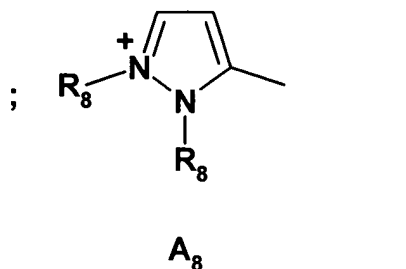
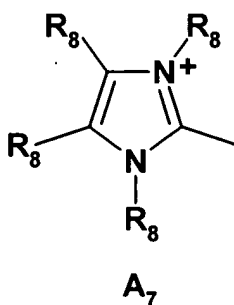
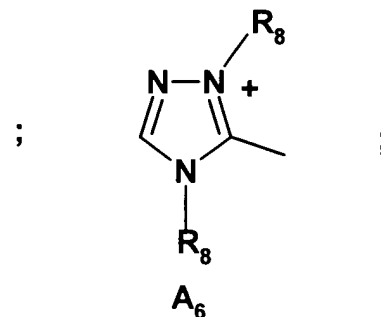
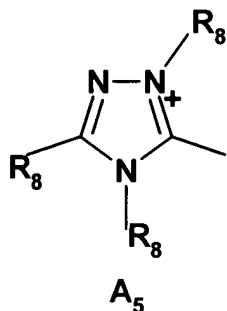
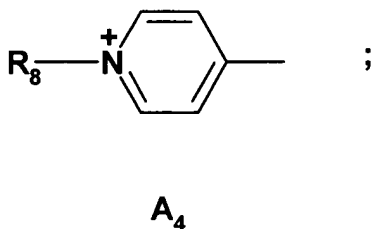
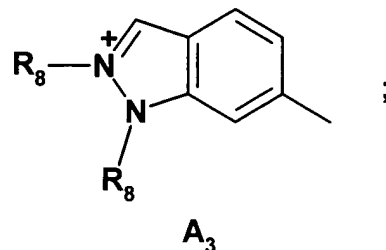
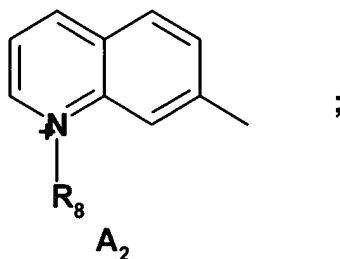
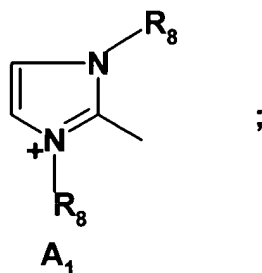
R_5 and R_6 , which may be identical or different, denote a hydrogen atom, C_1-C_4 alkyl radicals which can have a substituent chosen from $-CN$, $-OH$ and $-NH_2$ radicals, and a 4'-aminophenyl radical, or form, with a carbon atom of the benzene ring, a heterocycle, oxygenated and/or nitrogenated and optionally having at least one substituent chosen from C_1-C_4 alkyl radicals,

R_7 and R'_7 which may be identical or different, denote a hydrogen atom, a halogen atom chosen from chlorine, bromine, iodine and fluorine, a cyano radical,

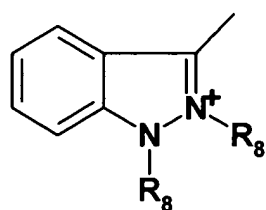
a C₁-C₄ alkyl radical, a C₁-C₄ alkoxy radical, or an acetyloxy radical,

X⁻ denotes an anion chosen from chloride, methyl sulphate and acetate;

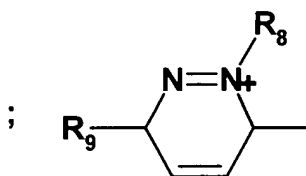
A is a group chosen from structures A₁ to A₁₉:



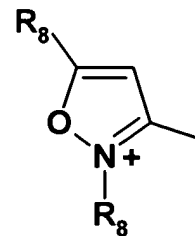
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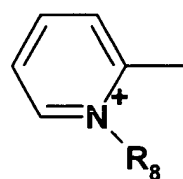
A₁₀



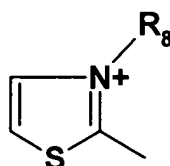
A₁₁



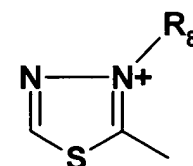
A₁₂



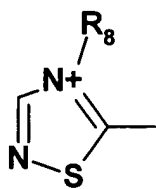
A₁₃



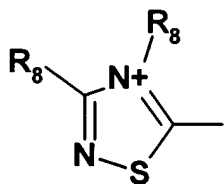
A₁₄



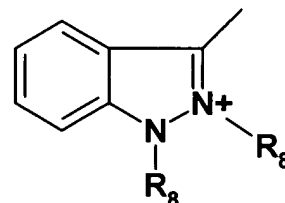
A₁₅



A₁₆

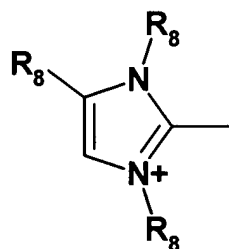


A₁₇



A₁₈

and



A₁₉

in which,

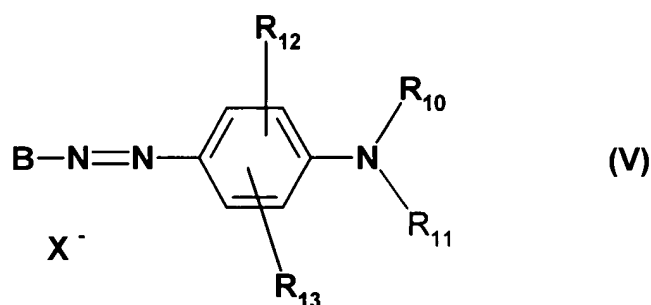
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R_8 denotes a C_1 - C_4 alkyl radical which can be substituted with a hydroxyl radical
and

R_9 denotes a C_1 - C_4 alkoxy radical,

b) the compounds of formula (V):



in which:

R_{10} denotes hydrogen or a C_1 - C_4 alkyl radical,

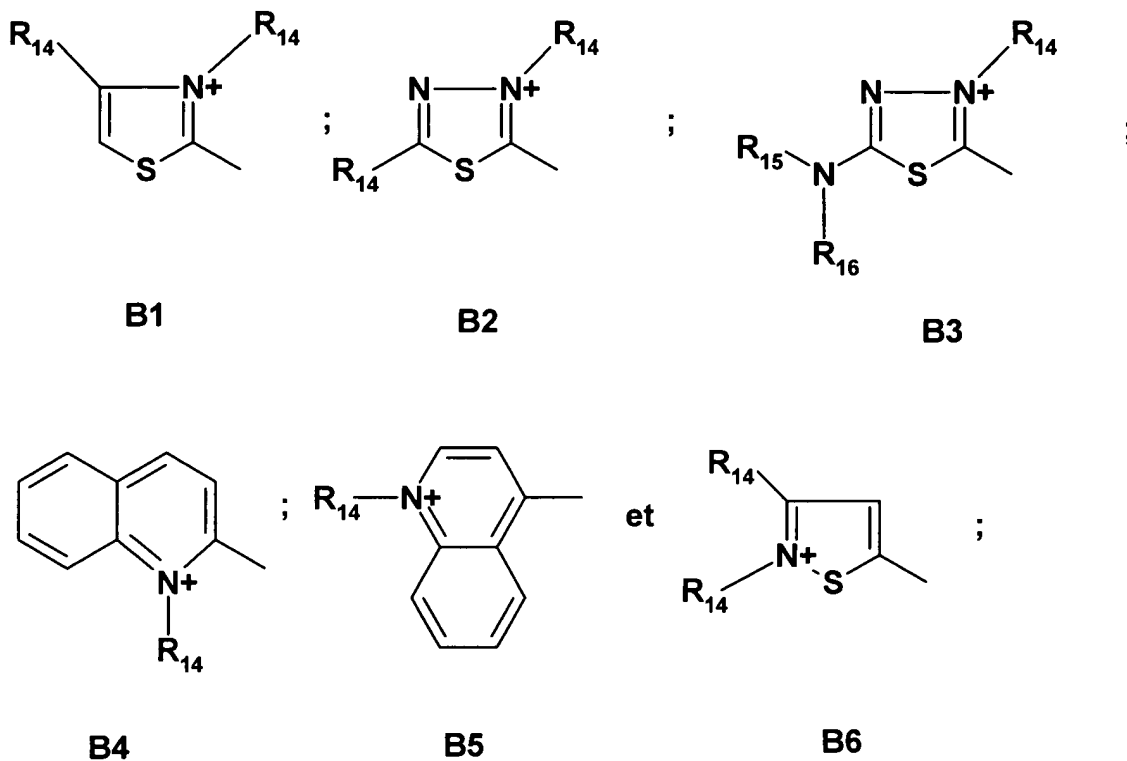
R_{11} denotes hydrogen or a C_1 - C_4 alkyl radical optionally having a substituent
chosen from a -CN radical, an amino radical, and a 4'-aminophenyl radical, or forms with

R_{10} a heterocycle, oxygenated and/or nitrogenated and optionally having at least one
substituent chosen from a C_1 - C_4 alkyl radical,

R_{12} and R_{13} , which may be identical or different, denote a hydrogen atom, a
halogen atom chosen from bromine, chlorine, iodine or fluorine, a C_1 - C_4 alkyl radical,
a C_1 - C_4 alkoxy radical, or a -CN radical,

X^- denotes an anion chosen from chloride, methyl sulphate and acetate;

B is a group chosen from structures B1 to B6:



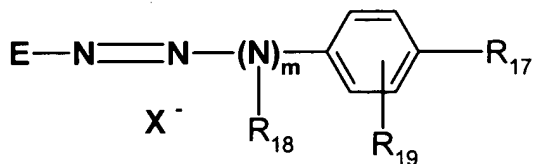
in which,

5

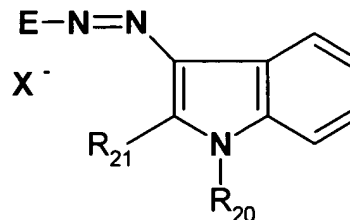
R_{14} denotes a C₁-C₄ alkyl radical, and

R_{15} and R_{16} , which may be identical or different, denote a hydrogen atom or a C₁-C₄ alkyl radical;

c) the compounds of formulae (VI) and (VI'):



(VI)



(VI')

in which:

R₁₇ denotes a hydrogen atom, a C₁-C₄ alkoxy radical, a halogen atom chosen from bromine, chlorine, iodine and fluorine, an unsubstituted amino radical, or a substituted amino radical,

R₁₈ denotes a hydrogen atom, a C₁-C₄ alkyl radical, or forms with a carbon atom of the benzene ring, a heterocycle which is optionally oxygenated and optionally having at least a substituent chosen from a C₁-C₄ alkyl radical,

R₁₉ denotes a hydrogen atom or a halogen atom chosen from bromine, chlorine, iodine and fluorine,

R₂₀ and R₂₁, which may be identical or different, denote a hydrogen atom or a C₁-C₄ alkyl radical,

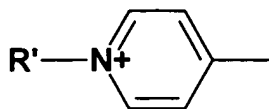
m is zero or 1,

X⁻ denotes an anion chosen from chloride, methyl sulphate and acetate;

E is a group chosen from structures E1 to E8:

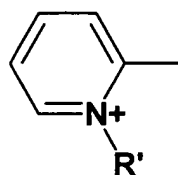
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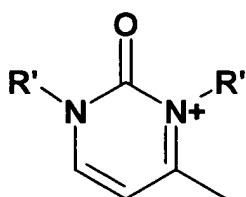
E1

;



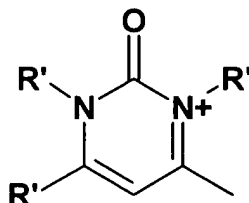
E2

;



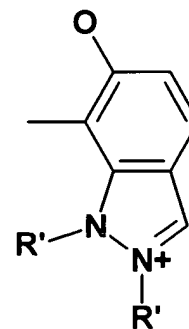
E3

;



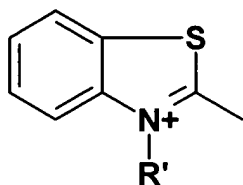
E4

;



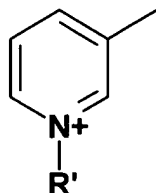
E5

;



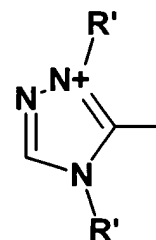
E6

;



E7

and



E8

in which,

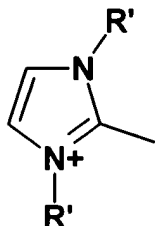
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R' denotes a C₁-C₄ alkyl radical,

when m is 0, then E can also be a group of structure E9:

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E9

in which,

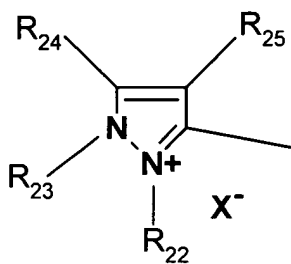
R' denotes a C₁-C₄ alkyl radical,

d) the compounds of formula (VII):

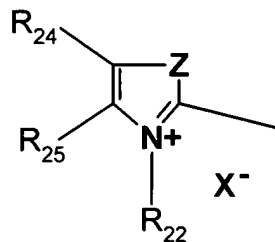


in which,

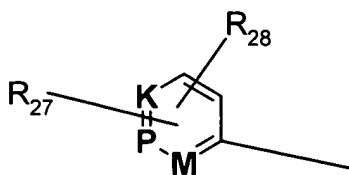
the symbol G represents a group chosen from structures G1 to G3:



G₁



G₂



G₃

in which,

R₂₂ denotes a C₁-C₄ alkyl radical or a phenyl radical optionally having a substituent chosen from a C₁-C₄ alkyl radical and a halogen atom chosen from chlorine, bromine, iodine and fluorine,

R₂₃ denotes a C₁-C₄ alkyl radical or a phenyl radical,

5 R₂₄ and R₂₅, which may be identical or different, denote a C₁-C₄ alkyl radical or a phenyl radical or, in the case of structure G₁, can together form a benzene ring having at least one substituent chosen from a C₁-C₄ alkyl radical, a C₁-C₄ alkoxy radical and an -NO₂ radical, and in the case of structure G₂, can together form a benzene ring optionally having at least one substituent chosen from a C₁-C₄ alkyl radical, a C₁-C₄ alkoxy radical and an -NO₂ radical, wherein R₂₄ can also denote a hydrogen atom,

Z denotes chosen from an oxygen atom, a sulphur atom or an -NR₂₃ radical;

M denotes a -CH radical, a -CR radical wherein R is chosen from a C₁-C₄ alkyl radical, or an -NR₂₆(X⁻)_r radical, wherein r is zero or 1,

15 K denotes a -CH radical, a -CR radical wherein R is chosen from a C₁-C₄ alkyl radical, or an -NR₂₆(X⁻)_r radical wherein r is zero or 1,

P denotes a -CH radical, a -CR radical wherein R is chosen from a C₁-C₄ alkyl radical, or an -NR₂₆(X⁻)_r radical wherein r is zero or 1,

R₂₆ denotes an oxygen atom, a C₁-C₄ alkoxy radical or a C₁-C₄ alkyl radical,

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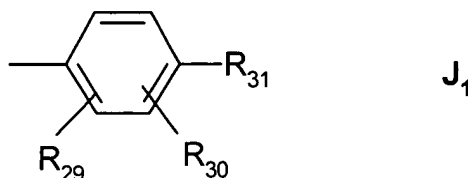
R₂₇ and R₂₈, which may be identical or different, denote a hydrogen atom, a halogen atom chosen from chlorine, bromine, iodine and fluorine, a C₁-C₄ alkyl radical, a C₁-C₄ alkoxy radical or an -NO₂ radical,

X⁻ denotes an anion chosen from chloride, iodide, methyl sulphate, ethyl sulphate, acetate and perchlorate, and

wherein at least one of K, M or P denotes -NR₂₆(X⁻)_r,

wherein the symbol J is chosen from:

(a) a group of structure J₁:



in which,

R₂₉ denotes a hydrogen atom, a halogen atom chosen from chlorine, bromine, iodine and fluorine, a C₁-C₄ alkyl radical, a C₁-C₄ alkoxy radical, a -OH radical, an -NO₂ radical, an -NHR₃₂ radical, an -NR₃₃R₃₄ radicals, an -NHCO(C₁-C₄)alkyl radical, or forms with R₃₀ a 5- or 6-membered ring which may contain at least one hetero atom chosen from nitrogen, oxygen and sulphur,

R₃₀ denotes a hydrogen atom, a halogen atom chosen from chlorine, bromine, iodine and fluorine, a C₁-C₄ alkyl radical, a C₁-C₄ alkoxy radical, or forms, with R₃₁ or

R₃₂ a 5- or 6-membered ring which may contain at least one hetero atom chosen from nitrogen, oxygen and sulphur,

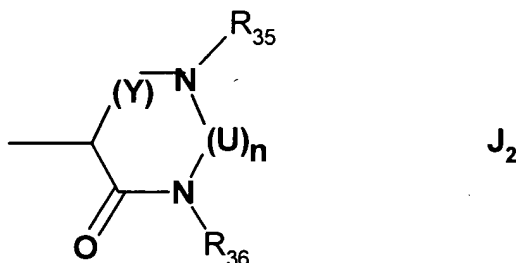
R₃₁ denotes a hydrogen atom, an -OH radical, an -NHR₃₂ radical or an -NHR₃₃R₃₄ radical,

5 R₃₂ denotes a hydrogen atom, a C₁-C₄ alkyl radical, a C₁-C₄ monohydroxyalkyl radical, a C₂-C₄ polyhydroxyalkyl radical or a phenyl radical,

R₃₃ and R₃₄, which may be identical or different, denote a C₁-C₄ alkyl radical, a C₁-C₄ monohydroxyalkyl radical or a C₂-C₄ polyhydroxyalkyl radical, and

10 (b) a 5- or 6-membered nitrogenous heterocyclic group which can contain at least one other hetero atom and/or at least one carbonyl group and which can have at least one substituent chosen from a C₁-C₄ alkyl radical, an amino radical or a phenyl radical.

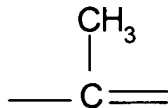
12. A composition according to claim 11, wherein said 5- or 6-membered nitrogenous heterocyclic group is chosen from a group of structure J₂:



15 in which,

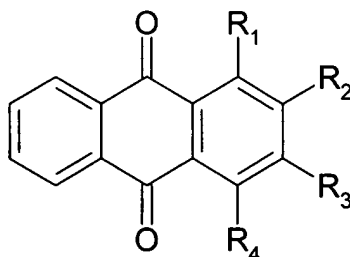
R₃₅ and R₃₆, which may be identical or different, denote a hydrogen atom, a C₁-C₄ alkyl radical, or a phenyl radical,

Y denotes a -CO- radical or a radical



5 wherein n = 0 or 1, where, when n denotes 1, U denotes a -CO- radical.

13. A composition according to claim 1, wherein said at least one direct dye is acid anthraquinonic dyes of formulae (VIII):



(VIII)

10 in which:

R₁ denotes a hydrogen atom, a -NH₂ radical, or a -NHR₅ radical, as defined below,

R₂ denotes a hydrogen atom or a -SO₃M radical where M denotes H or an alkaline or alkaline-earth counterion, an organic amine which may be hydroxylated or not hydroxylated, or ammonia,

15

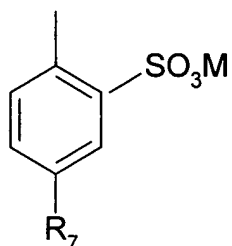
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R₃ denotes a hydrogen atom or a -OH radical,

R₄ denotes a -NHR₆ radical, a -OH radical, or an -NHR₅ radical,

R₅ denotes a radical of structure below:

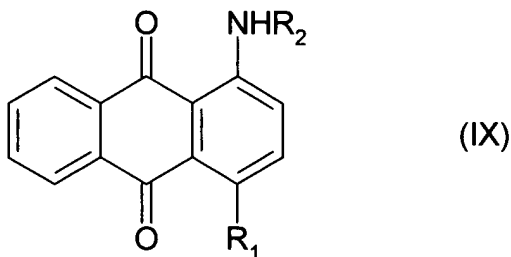


in which R₇ represents a C₁-C₄ alkyl radical,

R₆ denotes a linear or cyclic C₁-C₆ alkyl radical,

and in which formula (VIII), at least one -SO₃M radical is present.

14. A composition according to claim 1, wherein said at least one direct dye is
a cationic anthraquinonic dye of formula (IX):



in which:

R₁ denotes a hydrogen atom, a -OH radical, a -NH₂ radical, or a

-NH(C₁-C₄)alkyl radical,

R₂ denotes a -(CH₂)_n-NR₃R₄(R₅)_m- radical, in which n denotes 1 or 10, m denotes zero or 1, and

R₃, R₄, R₅ which may be identical or different, denotes a hydrogen atom or a
5 C₁-C₄ alkyl radical, and

wherein R₃ and R₄, with the nitrogenous atom, can form a 5- or 6-membered heterocycle group which can contain at least one other hetero atom chosen from nitrogen, oxygen or sulphur and optionally having at least one substituent chosen from C₁-C₄ alkyl radicals, amino radicals, and phenyl radicals.

10 15. A composition according to claim 1, wherein said cosmetically acceptable support suitable for dyeing is an aqueous support comprising water or water and at least one organic solvent selected from alcohols, glycols and glycol ethers.

15 16. A composition according to claim 15, wherein said cosmetically acceptable support suitable for dyeing is present in an amount ranging from 0.5 to 20% by weight relative to the total weight of said composition.

17. A composition according to claim 16, wherein said cosmetically acceptable support suitable for dyeing is present in an amount ranging from 2 to 10% by weight relative to the total weight of said composition.

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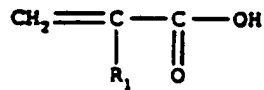
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18. A composition according to claim 1, wherein said composition further comprises at least one adjuvant.

19. A composition according to claim 1, wherein said composition is in the form of a liquid, a cream, a gel, or any other form suitable for dyeing hair.

20. A composition according to claim 1, wherein said composition is packaged under pressure in an aerosol can in the presence of a propellant.

21. A process of improving the conservation of the dyeing power of a direct dye composition by including in said composition an effective amount of at least one crosslinked polymer containing acrylic residue units of the structure

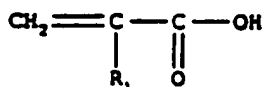


in which R₁ denotes H, CH₃ or

C₂H₅, and C₁₀-C₃₀ alkyl acrylate residue units, and wherein said at least one direct dye is chosen from an acidic anthraquinone dye, a cationic anthraquinone dye, an acidic azo dye, and a cationic azo dye.

22. A process according to claim 21, of improving the conservation of the dyeing power of a direct dye composition after storage at low temperatures.

23. A process for dyeing hair by direct dyeing, comprising: applying to said hair when wet or dry an effective amount of a composition comprising, in a cosmetically acceptable support suitable for dyeing, at least one direct dye and at least one crosslinked polymer containing acrylic residue units of the structure



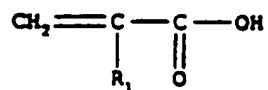
5 in which R₁ denotes H, CH₃ or C₂H₅, and C₁₀-C₃₀ alkyl acrylate residue units, and wherein said at least one direct dye is chosen from an acidic anthraquinone dye, a cationic anthraquinone dye, an acidic azo dye, and a cationic azo dye.

10 24. A process according to claim 23, further comprising, after said applying step, leaving said composition on said hair for a period of time; rinsing said hair; optionally washing and rinsing said hair; and drying said hair.

25. A process according to claim 23, wherein said composition is left on said hair for a period of time ranging from 3 to 60 minutes.

15 26. A process for dyeing hair by direct dyeing, comprising: applying to said hair when wet an effective amount of a composition comprising, in a cosmetically acceptable support suitable for dyeing, at least one direct dye and at least one

crosslinked polymer containing acrylic residue units of the structure



in which R₁ denotes H, CH₃ or

C₂H₅, and C₁₀-C₃₀ alkyl acrylate residue units, and wherein said at least one direct dye is an anthraquinone or azo dye which is acidic or cationic.

- 5 27. A process according to claim 25, further comprising waiting a period of time after said applying step and before said drying step.

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